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# agricultural marketing



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Lamb for School Lunch

Trends in the Use of Wool



U. S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE



## Contents

September 1960

The Vermont Milk Flavor Improvement Program	3
The Export Pear and Apple Act	6
Lamb for School Lunch	7
Income from Sheep Raising	8
Trends in the Use of Wool	8
Statistical Reports on Sheep and Wool	9
Preventing Insect Infestation of Farm-Stored Grains	10
Cooling Grain	10
A Layout for a Small Country Grain Elevator	10
Quality Egg Program Scores Success	11
Trends and Prospects for Processed Farm Foods	12
Hydrocooling Cantaloups	14
Packers and Stockyards Act	15
Millions of Well-Fed Children	16

## Cover page

This year, and September (American Wool Month) in particular, marks the 200th Anniversary of the American wool industry. Pretty Patti Jo Shaw, "America's ambassadress of good wool," is an attractive reminder of the occasion. The children romping back to school are a reminder, too, not only that fall woolens will be back on the scene but that during this coming school year, according to estimates by AMS' Food Distribution Division, 13,500,000 school children will be participating in the National School Lunch Program.

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Editor, Milton Hoffman

Associate editor, Jeanne Starr Park



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# the VERMONT milk flavor improvement program



*Retail and home delivery sales of fluid milk in the State increased over 11 percent as flavor became the motto of an industry*

*by Elmer E. Towne  
and William Whyte*



A Vermont farmer is presented with another "good milk flavor rating" by his dairy. Above left, milk flavor specialist Clark and technician check producers' milk for flavor at State dairy laboratory.

**M**ORE people drink more milk when flavor is at its best. It's happening in Vermont.

Today, milk from the Green Mountain State is carrying a new dimension in goodness to consumers as a result of the Vermont Milk Flavor Improvement Program.

Vermonters are finding that really good milk flavor means a better milk business. Retail and home delivery sales in the State have increased over 11 percent since the beginning

of the Program. Moreover, this increase occurred during a period in which there was only a slight gain in population.

Vermont Department of Agriculture figures also indicate that out-of-State sales have improved too, by over 10 percent.

These are important gains because dairying is big business in Vermont. It provides 80 percent of the State's agricultural income.

Thanks to the new Flavor Program—dairy farmers, processors, distributors, equipment manufacturers, and many other groups, including New England housewives,

are becoming more aware of how the naturally good flavor of milk can be protected.

It all started when Professor Alec Bradfield of the University of Vermont Experiment Station announced to a startled dairy industry that 70 percent of the milk produced in the State became off-flavored as it traveled between the cow and the consumer. He classified these off-flavors as barny, feed, rancid, malty, and oxidized. Usually, off-flavors were slight, going undetected even at the dinner table. Nevertheless, they were dulling appetites for milk.

Mr. Towne is Vermont's Commissioner of Agriculture. Mr. Whyte, a staff member of the Marketing Information Division of AMS, went to Vermont to get his story from farmers and processors and the agricultural specialists responsible for the Program.

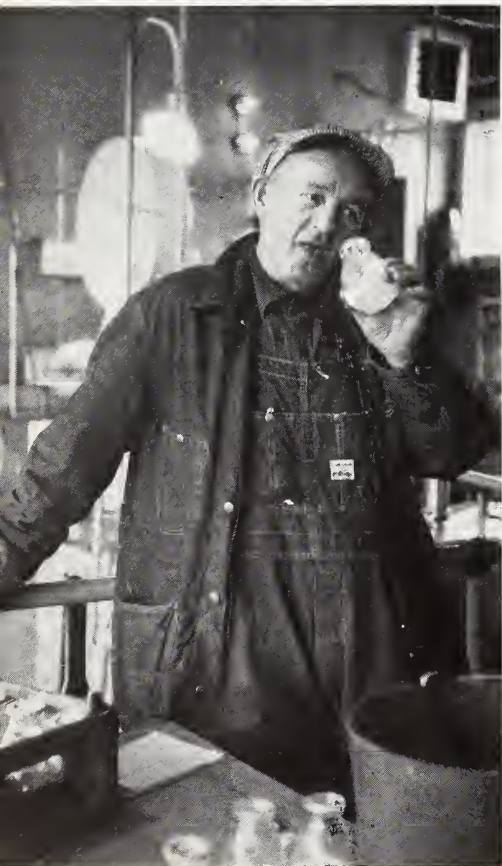


The Vermont Extension Service, and especially extension dairyman Warren A. Dodge, brought the impact of Bradfield's findings home to the dairy industry. Farmers were invited to flavor-judging contests in which they sometimes had the experience of downgrading their own samples. Dairies were given flavor-rating forms and retailers and homemakers were advised on how to maintain good milk flavor.

Vermont's Commissioner of Agriculture Elmer E. Towne saw in the situation a chance to raise the already high milk standards of the State. He appointed Harold O. Clark, a former milk inspector, to carry out a State-wide program in cooperation with the Agricultural Marketing Service, U. S. Department of Agriculture, to improve the flavor of Vermont milk.

Milk flavor specialist Clark soon found that processors and farmers were most willing to cooperate. Processors voluntarily gave of their

Formers, invited to judge flavor, sometimes, to their surprise, downgraded their own samples.



time and money to carry Clark's program to milk producers. Farmers, in turn, incurred the expense and labor necessary to correct flavor defects.

This Flavor Program, supported by funds from the Federal and State governments, was authorized through the Agricultural Marketing Act of 1946.

Briefly, this is the way the program works today:

Vermont processors send monthly milk samples to be flavor tested at the State laboratory in Montpelier. They also flavor-test monthly samples from each producer in their own plants.

Clark helps to train plant personnel to taste and identify off-flavors. Nonsmokers, especially girls or old employees with years of experience in checking incoming milk by odor, are keen at flavor testing.

When an off-flavor is detected, it is classified as to intensity (fair to poor) and identified.

Suppose that a barny flavor is found in a sample taken from a producer's shipment of milk.

A fieldman from the dairy is sent to help the farmer locate and eliminate the cause. Each flavor has a number of possible causes. The barny flavor may be a result of poor ventilation, dirty stables, poor milking practices, or inadequate cleaning of stables or cows. A systematic check usually pinpoints the problem.

The fieldman's report on the corrective action is brief. It might be, "will install 30-inch window fan to increase ventilation," or "pipeline equipment—changed cleaner and methods."

This immediate action gets fast results. Although farmers face the probability of being "shut out" by the dairy if a flavor defect persists, it is their genuine interest in eliminating off-flavors that makes this part of the program effective.

Vermont farmers are backing the program and believe in it. Richard Messer, who owns 33 milkers and

gets 1,200 to 1,400 pounds of milk a day, looks at it this way:

"Today, I know a lot more about how to keep my milk free of off-flavors than I did four years ago, and I think that this is true of other dairymen."

Elwin Neil, a farmer with 50 milkers producing 1,900 pounds of milk a day, says, "I don't get angry when the dairy tells me to correct an off-flavor. It's just plain good business to produce milk that customers like to drink."

According to William Knox, dairy technician for a dairy plant near Quincy, "The incidence of off-flavor in our producers' milk has decreased in the past two years. I can remember when an average of 16 of our 72 producers got a fair to poor rating. Now about 8 may get fair ratings—poor ratings are infrequent."

Not all off-flavors originate on the farm. Good milk is a delicate chemical balance of mineral salts, milkfat, and lactose which gives it a slightly sweet and pleasing flavor. The balance can be upset in the processing plant, the retail store, and even in the home, as well as in the farm milkhouse. At times milk is more susceptible to some off-flavors than others.

For instance, milk may become oxidized anywhere along the marketing line. Oxidized milk may be caused by exposed copper or iron, exposure to daylight or strong artificial light, or once in a while, the physiology of a certain cow.

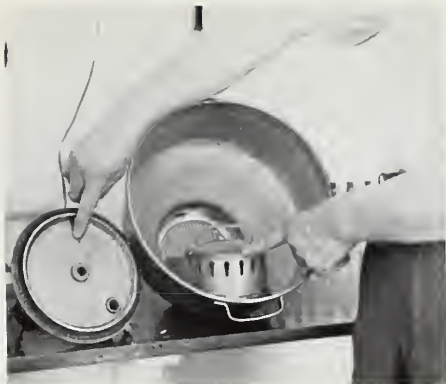
Clark has been combatting this problem by urging a speed up of the conversion to stainless steel equipment on farms and in plants.

The switch to stainless steel is far enough along now that State regulations will probably end the use of flavor damaging metals on Vermont farms this year.

An oxidized flavor in milk may also be initiated by a few minutes of direct sunlight.

So far, 30 dairies in the State have cut down on light damage by bottling milk, especially homoge-





Plating has worn off this milker head and milk strainer, exposing two flavor damaging metals.



The bulk milk driver uses his trained sense of smell to search for any faint off-odor in the farm bulk milk tank, while farmer pours in milk.

nized milk, in amber colored glass.

"Usually we get customer complaints in the spring, when milk is subject to more daylight exposure," says Laurence Martin, a processor-distributor in Waterbury. "Amber bottles have stopped this problem."

At regular intervals Clark and Prof. Bradfield go to Boston and check the flavor of milk shipments coming from Vermont. Since Vermont produces a little over 70 percent of all the milk in the Boston market pool, it is important to carry the program to Boston's doorstep.

At present Clark is working to introduce light-proof milk containers into Boston retail stores—a practice which is being successfully used in Canada.

The Vermont Milk Flavor Improvement Program is crossing State boundaries in other ways too. Massachusetts now has a similar program. Other New England States also are checking their milk more carefully for off-flavors, as a result of Extension Service brieflets and information similar to those circulated prior to the Vermont program.

The real importance of the Vermont Flavor Program is summed up by Commissioner Towne:

"Flavor improvement in addition to a sound sanitation program provides us with a good basis on which to market our milk. I think that the flavor program is proving to everyone, that when milk tastes like more, that's what the dairy industry sells."



Clark displays 10 amber colored milk bottles representing some of the numerous dairies now using this method to protect milk from light.



Extensionmen W. A. Dodge and Si Jewett visit local dairy and are invited to take part in flavor judging samples of producers' milk.

# The EXPORT APPLE and PEAR ACT



*With revival of world trade in recent years, the Act promises once again to serve as a useful marketing tool just as it did in the 1930's.*

by Floyd F. Hedlund

**O**LD LAWS usually do not fade away—and it's often a good thing they do not.

Take the Export Apple and Pear Act, for example. It came into being nearly 30 years ago to deal with marketing problems of the 1930's. But during World War II and the period after, as U. S. exports of fresh apples and pears fell to very low levels.

With revival of world trade in recent years, the Act promises once again to serve as a useful marketing tool.

The Act was passed in 1933 to help clean up what had become a serious marketing situation. So much bad fruit from the United States was flooding export markets that foreign governments were threatening to bar all American fruit.

The apple and pear industries asked for help from the Congress—and got it, in the form of the Export Apple and Pear Act.

The Act has two main provisions that helped clear up the 1933 situation—and that can help deal with today's marketing problems as well.

First, the Act calls for minimum grade standards for apples and

pears that are to be exported. Second, it requires that every shipment of apples or pears bound for overseas must be inspected—to make sure minimum standards are met.

When the Act was first put into effect, USDA worked closely with the fruit industry to establish standards that would satisfy the angry foreign customers and restore confidence in our products—but that would still be practical and acceptable to U. S. fruit shippers and exporters.

The standards set up weren't high but they served their purpose by keeping some of our less desirable fruit out of export channels.

When World War II broke out our fresh fruit export markets practically disappeared. They remained closed to us through the war years and the early postwar period when importers who wanted our fruit products lacked dollars to buy them.

Remarkable recoveries have been staged by many of the countries that were so dollar-poor in the wake of the war. These buyers are able to purchase fruits and other import items they used to buy before the war. But, from whom are they going to buy these products?

Other fruit exporting nations—Italy and Argentina, for example—have increased their production.

And they have raised their quality requirements to make sure their best fruit represents them to foreign buyers.

So far, though, the United States is still laboring along with virtually the same requirements that were set up in the 1930's under the Act. Minimum grade requirements for exports have been raised slightly in the last two years, but there has been no major revision.

U.S. grades for apples and pears, *unlike* those for any other fruit, provide that internal breakdown, overripeness, decay, scald, bitter pit, cork spot (in the case of pears), or other deterioration which may have developed while in storage or transit shall be considered as affecting condition but not grade.

This special provision was adopted originally because it was customary to grade, pack, and store these fruits at time of harvest in their regular shipping containers. No regrading was done at time of shipment so it was not considered feasible to score against grade those condition changes which naturally took place in storage.

However, when apples or pears are regraded and repacked from field crates or other storage containers, all condition factors as well as the permanent grade factors

*(continued on page 16)*

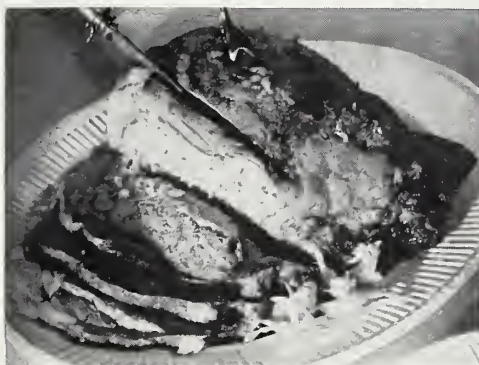
The author is Deputy Director of the Fruit and Vegetable Division of AMS.





*AMS tests a new dish for many youngsters*

## LAMB FOR SCHOOL LUNCH



**M**ANY of the nation's youngsters eating school lunches last winter were treated to a new luncheon dish . . . lamb. Being individuals, some of the youngsters liked it, a few didn't, and some were indifferent.

The lamb-eating was a carefully-planned experiment conducted by the Agricultural Marketing Service, which administers the National School Lunch Act. Cooperating in the test were the Sheep Producers Council and the school systems of 10 States in 5 geographical regions. In all, 671 schools took part in the project and served lamb once a week for four weeks, for a total of 2,638 lamb meals.

The U. S. Department of Agriculture purchased some 350,000 pounds of frozen ground lamb. This was shipped to the participating school systems in carload lots. The Department furnished eight different recipes to be used as desired during the four-

week test period to lend variety to the menus. Lunch managers also received instructions in the proper handling, preparation and serving of the ground lamb.

On lamb serving days, Federal or State employees visited individual schools to observe the preparation and serving of lamb and to interview the children, managers, and teachers. An analysis of the 1,181 reports from these interviewers reveals some of the potentialities and also some problems facing the lamb industry in developing merchandising-education programs to expand the market for lamb.

Generally, lamb was well accepted in the schools surveyed. About 63 percent of the lamb meals were rated as good by the pupils with another 22 percent of the servings reported as having fair acceptance.

In evaluating the acceptance of lamb by pupils it is recognized that "fair to good" represents the average level of approval. Very few foods attain an excellent rating with children. Hence, the indication that for 85 percent of the time lamb was served it met with "fair to good" acceptance appears to be a fairly reliable measure of its acceptability.

Managers' comments on the serving of lamb and their reactions toward the product and its preparation averaged almost 84 percent in the "good and fair" categories—almost identical with the level of acceptance reported for the children. Some comments indicated that acceptability by children appeared to decrease with the frequency of the service.

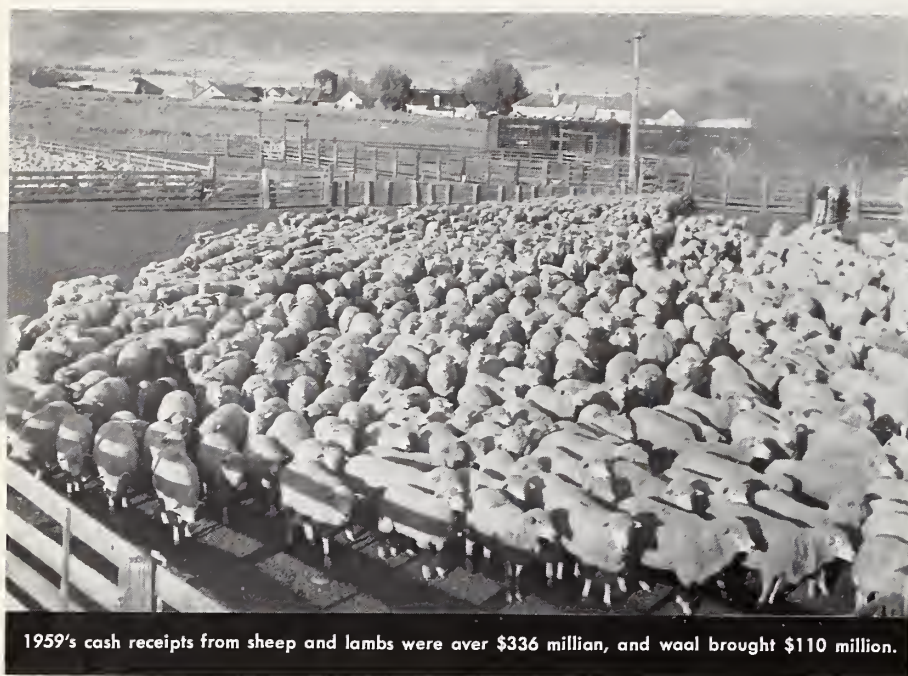
Pre-existing prejudices toward lamb were found among many participants, particularly adults. Despite instructions to each school that the children were to be told that they were eating lamb, some school lunch managers avoided such notification for nearly 30 percent of the times that lamb was served. In a number of instances, the children ate the product and reported liking it very much. But later, when told that they had eaten lamb, they decided they hadn't liked it after all.

About 80 percent of the lamb meals were from 4 of the 8 USDA recipes furnished—loaf, patties, burgers and a meat sauce. In these recipes, the lamb dishes closely resembled ground beef and ground pork items, both of which have a high degree of acceptability in school lunches.

Acceptability of ground lamb by regions showed considerable variation. In the Northeast and Western areas, which are the principal lamb-consuming sections of the country, acceptance by the children in the test schools was lowest. Best acceptability was reported in the Southeast, where fewer children were advised that lamb was being served. The Midwest and Southwest, with a high level of such notification, had the next best acceptability.

Of course, the final proof of the lamb is in the eating, and, in general, the majority of children in the test schools liked their lamb and ate it.





1959's cash receipts from sheep and lambs were over \$336 million, and wool brought \$110 million.



## INCOME from Sheep Raising

**S**HEEP GROWERS get over twice as much money from the sale of animals as they do from wool.

At least that's what statistics gathered by the Agricultural Marketing Service show.

Last year's cash receipts from marketings of sheep and lambs, including farm sales of lamb and mutton, were over \$336 million. In addition, sheep raisers consumed almost \$4 million worth of their own lamb and mutton, so that their gross income from the sheep enterprise totaled \$340 million. This was a little less than in 1958 but more than any other year before 1952.

About two-thirds of the income from sheep during 1950-54 came from the sale of animals. Since then Government payments to encourage wool production have raised the income attributable to wool somewhat.

The value of shorn wool produced in 1959 was \$110 million, a fourth more than in the year before. Farmers will receive additional income in the form of incentive payments, but these payments are expected to be somewhat less than they got for the 1958 clip, approximately \$85 million.

The cash receipts of \$336 million received from marketings of sheep and lambs are but a small part of the \$32,777 million received from marketings of all crops and livestock last year. Even including income from wool, receipts from sheep raising were less than 2 percent of farmers' cash receipts. But in some States—notably those with extensive dry or mountainous pastures—sheep provide a much larger part of the farm income than that for the country as a whole.

Iowa, Colorado, California, and Texas lead in receipts from marketings of sheep and lambs with sales of over \$20 million each.

*Earl E. Miller, Agricultural Economics Division, AMS*



Use of apparel wool rose 23% in



Carpet wool sales were up in '59



## TREND in the

**M**ILL CONSUMPTION of wool increased substantially in 1959. For wool was 26 percent above 1958. More than 431 million pounds of wool were consumed last year—28 percent more than in 1958. It increased its share of the total fiber consumed 6.4 percent in 1959.

In contrast to last year's gains, wool consumption has been steadily since World War II. There have been changes in the age and location of the population, the trend toward heavier weight clothing, and increased consumption of wool.

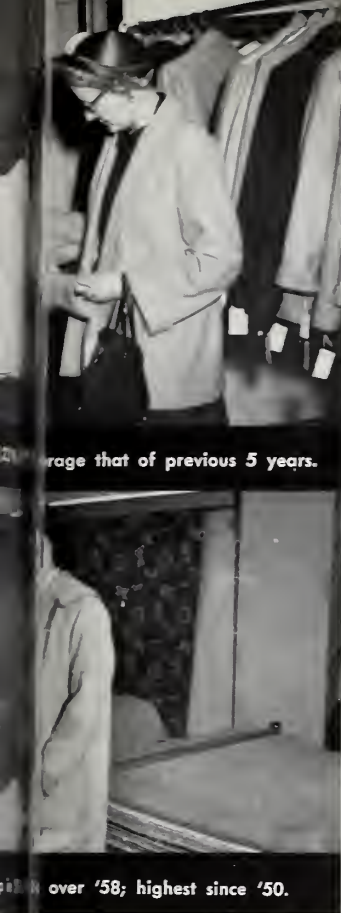
Several developments may see increased use of wool products in the future. Changes in age composition of the population, the trend toward heavier weight clothing, and the last decade swell the young population.

Urban redevelopment and migration could also increase consumer expenditures for housing and more durable goods, such as clothing.

In addition, technological improvements—permanent mothproofing, washing, and others—together with competition from manmade fibers.

*Charles E. Raymond, AMS*





average that of previous 5 years.

over '58; highest since '50.

## Use of Wool

Wool and use of wool per person. The 2.4 pound rate per capita was the lowest since 1950.

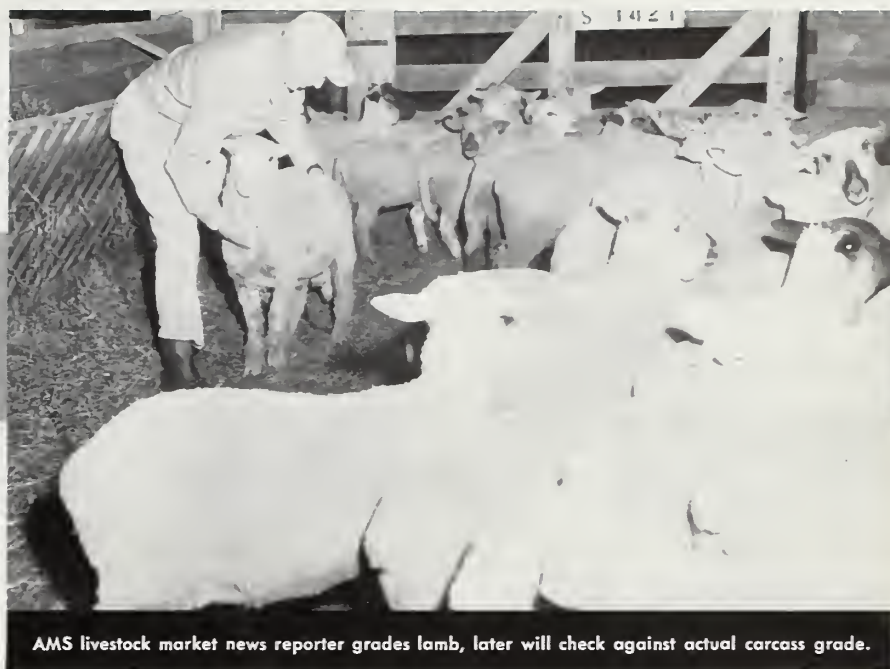
Wool (clean basis) were used earlier. As a result, wool in the market from 5.7 percent in 1958 to

Wool per person has declined. Causes for the longterm decline include changes in composition and geographical distribution towards more informal and lighter weight garments from manmade fibers.

When the demand for wool and wool products is speculative of these is change in the large number of babies born in the market of the coming decade. Many of the suburban population are expected to require less money for clothing as less money is spent for rental housing and non-

Interest in wool and wool products, such as new wear features, permanent pleating, and aggressive promotion, may contribute to the future. However, strong competition is expected to continue.

Agricultural Economics Division, AMS



AMS livestock market news reporter grades lamb, later will check against actual carcass grade.



## STATISTICAL REPORTS on Sheep and Wool

**I**F YOU are in any phase of sheep and wool production and marketing, there are sure to be some statistical reports of the Agricultural Marketing Service that will be of interest and value to you.

Perhaps you have questions like these: How many sheep and lambs are on farms? How many lambs were saved from this year's lamb crop? Where are they raised? How many animals were slaughtered?

These questions are typical of those asked by farmers, marketing agencies, meat packers, cold storage firms and others.

If you are a farmer, you will be interested in the January 1 inventories of all sheep and lambs and their value for each State; number of sheep and lambs on feed; number of lambs saved, number of sheep shorn and pounds of wool produced. There also is an annual report on inshipments, farm slaughter, deaths, marketings, cash receipts, gross income, and value of home consumed mutton and lamb, by States. Reports are released in the Spring on the early lamb crop in the important early States. Prices received by farmers for sheep, lamb, and wool are reported each month.

If you are a processor, the reports will give you statistics on the number and live weight of sheep and lambs slaughtered in each State. Also, for the United States, cold storage holdings of mutton and lamb, and pounds of wool pulled are issued.

The vast amount of statistical information shown in these reports comes from the farmers and ranchers, themselves, as well as from packinghouses, cold storage plants, and wool pulleries.

In several States, information on sheep and lambs is obtained from annual farm censuses and taxation records. To round out the picture, other sources are tapped—livestock marketing agencies, stockyards, livestock auctions, wool warehouses, and transportation concerns.

Emmett B. Hannawald, Agricultural Estimates Division, AMS







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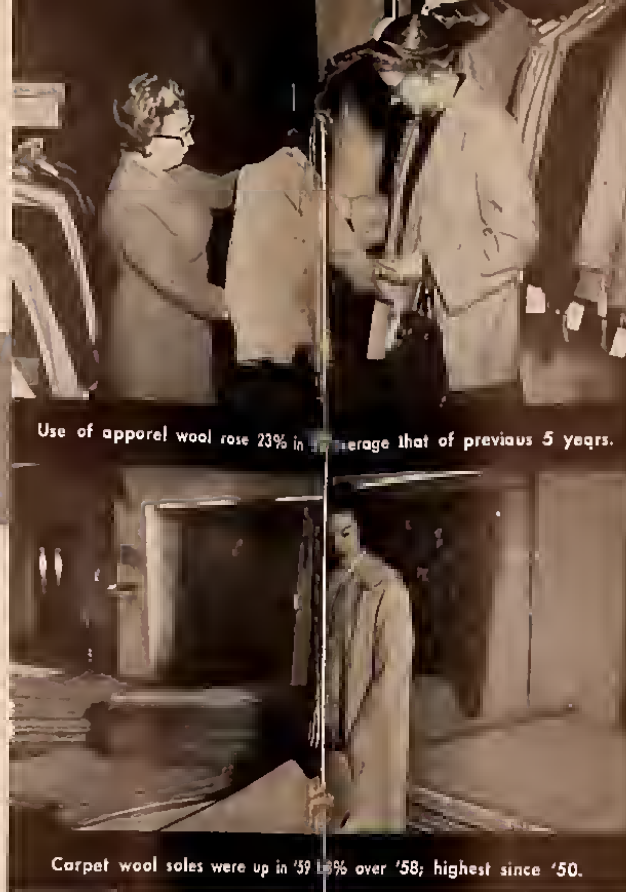
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## TRENDS in the Use of Wool

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More than 431 million pounds of raw wool (clean basis) were used last year—28 percent more than a year earlier. As a result, wool increased its share of the total fiber market from 5.7 percent in 1958 to 6.4 percent in 1959.

In contrast to last year's gain, use of wool per person has declined steadily since World War II. Major causes for the longterm decline have been changes in the age and sex composition and geographical location of the population, the trend towards more informal and lighter weight clothing, and increased competition from manmade fibers.

Several developments may strengthen the demand for wool and wool products in the future. Less speculative of these is change in age composition of the population. The large number of babies born the last decade swell the young adult market of the coming decade.

Urban redevelopment and maturing of the suburban population could also increase consumer expenditures for clothing as less money is expended for housing and more for rental housing and non-durable goods, such as clothing.

In addition, technological improvement in wool and wool products—permanent mothproofing, wash and wear features, permanent pleating, and others—together with intensive promotion, may contribute to an increase in the use of wool in the future. However, strong competition from manmade fibers is expected to continue.

Charles E. Raymond, Agricultural Economics Division, AMS



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Emmett B. Hannawald, Agricultural Estimates Division, AMS





## Preventing INSECT INFESTATION of Farm-stored Grains

**E**ACH year farmers lose enormous quantities of their farm-stored grain to a group of insects that live on dry seeds and vegetable products.

Luckily, however, for the farmers, they don't have to stand for this burglary in the grain bin, if they use successful methods of preventing or controlling this kind of infestation.

Here are a few simple answers to

a big problem:

- Store only grain of 12 percent moisture or less (dry grain).
- Store in weather-tight, rodent-proof bins.
- Clean out all bins before loading with grain.
- Spray walls, floors, and woodwork of bins, as well as the surrounding ground area with a residual type of spray.
- Clean up and dispose of litter, waste grain, and feed that have accumulated in and around farm buildings.
- Avoid storing market grain in animal shelters or hay barns.
- Apply protectants to the grain during or immediately after harvest or fumigate two to eight weeks after placing small grains and shelled corn in storage.
- Inspect frequently and refumigate if an infestation is discovered.

Limited quantities of Bulletin 416, put out by Kansas State University Experiment Station are available. Entitled "Causes of Outbreaks of Stored-Grain Insects," the report may be requested from the Agricultural Marketing Service, USDA, Washington 25, D. C.

## Cooling Grains to Prevent Insect Infestation

**P**RECOOLING grain before shipment or storage will help to prevent spoilage and insect infestation, according to researchers of the Agricultural Marketing Service.

In tests with wheat, corn, soybeans, sorghum grain, rough rice, oats, and pea beans air was blown through a thin layer of moving grain. Exposures of from two to 14 seconds, depending on the size of the grains, reduced temperatures halfway to the temperature of the air.

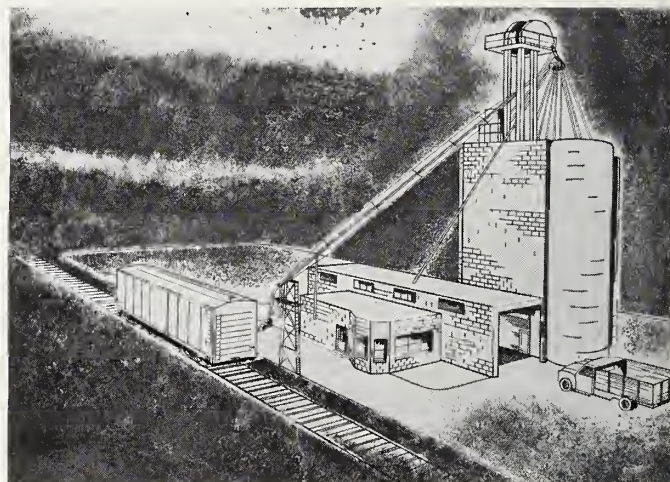
The results of this experimentation, conducted in cooperation with Purdue University, appear in a report entitled "Cooling Rates of Grains—A Laboratory Study With Maximum Exposure to Airflow." It may be obtained from the Agricultural Marketing Service, USDA, Washington 25, D. C.

## RECOMMENDATIONS FOR: a small country elevator

**T**HERE is money to be saved if a grain elevator operator makes sound decisions when he builds.

- In selecting the site, careful consideration should be given to transportation facilities, utilities, bearing capacity of soil, and topography of the elevator site.
- Basic principles of good plant layout should be used to integrate men, materials, and equipment so as to move grain at lowest cost, safely—under good working conditions.
- Materials and construction methods should not only minimize building costs but also depreciation, maintenance, insurance, and other annual costs.
- Handling equipment should be selected and arranged with an eye to the elimination of bottlenecks and a reduction in waiting lines.
- Careful selection should be exercised in purchasing the necessary equipment such as aeration systems for keeping grain in good condition.
- Design of the buildings and equipment should minimize dust, improve safety, and eliminate fire hazards.

An AMS marketing research report spells out in detail just how a small country elevator can be built with economy and quality. A free copy of the study, MRR-387, may be obtained from the Office of Information, USDA, Washington 25, D. C.







PRODUCED and MARKETING  
under FEDERAL - STATE  
QUALITY CONTROL PROGRAM

## QUALITY EGG PROGRAM SCORES SUCCESS



USDA Inspector performs a "break-out test," an important control—visual proof of quality.

by Lester Kilpatrick

"Extremely good consumer acceptance . . ."

"... a helpful sales tool in interesting and selling the major buyers . . ."

"... The best yardstick for measurement of interior quality in eggs known today."

"... very satisfactory."

These are some of the comments made by users of USDA's new quality control egg grading program during its first year of official operation.

The program, developed and administered by the Poultry Division of the Agricultural Marketing Service, provides for a new top-quality grade, "Fresh Fancy Quality." It became official on September 15, 1959.

Since that time, approximately 20 egg handlers, counting those that had already been in the program on an experimental basis, have officially enrolled in the quality control program. Their plants are located in 12 different States: Illinois, Indiana, Iowa, Michigan, Mississippi, Missouri, Nebraska, Ohio, Pennsylvania, Texas, Washington, and Wisconsin.

Individual producers who pro-

duce and market their own eggs direct to consumers and retail outlets, as well as large packers servicing hundreds of producers, are operating under the quality control program.

Basic to the new program is control of egg quality from the nest to the consumer. The first step is qualification of the producer and his flocks of laying hens. Farm equipment must be satisfactory and eggs must be handled in the prescribed manner. This includes frequent gathering and immediate cooling to 60 degrees or less. Eggs from each flock (birds within 60 days of the same age) must be packed separately and the cases identified so that they can be tested at the packing station.

Under these conditions, the eggs from one flock will be remarkably uniform in quality. Therefore, to test for quality under the program it is necessary to score only representative samples. This is done by breaking out the sample eggs, observing the yolk and measuring the height of the albumen (thick white). No serious yolk defects are permitted. Albumen quality is measured in terms of Haugh units—scale readings based on the weight of the egg and albumen height.

Top quality eggs score from 72

to about 100 Haugh units, while C quality eggs range from 0 to 30.

A flock is eligible for the program if a random sample of 25 eggs averages at least 76 Haugh units, or each of two consecutive weekly samples averages at least 73 Haugh units. Not more than one egg in any of the samples may be less than 55 Haugh units, and all of the eggs must have yolks with a well-rounded appearance and a reasonably uniform color.

After qualifying, a flock may remain in the program as long as testing of weekly samples indicates that its eggs are maintaining a "moving average" (average of latest four weeks) of 72 Haugh units or better, and certain other minimum requirements are being met.

Before the eggs are packed under the "Fresh Fancy Quality" label, any that have blood spots, meat spots, checks, or shells not up to the AA Quality minimum must be removed.

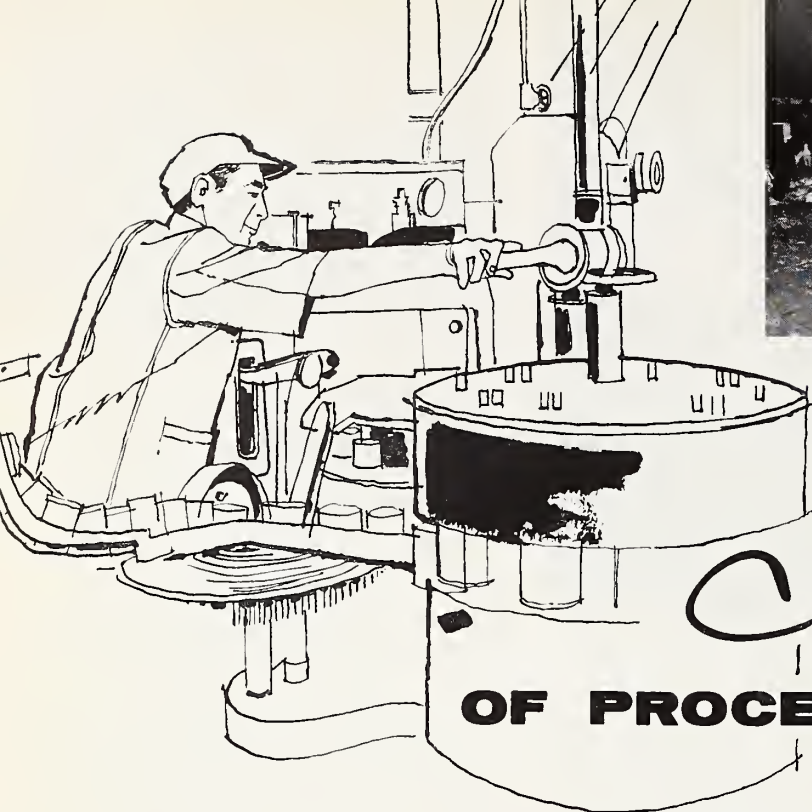
In addition, cartons carrying the "Fresh Fancy Quality" grade mark must also show the size of the eggs, on the basis of U. S. standard egg sizes, and a "pull" date of not more than 10 days from the date of testing. After expiration of that date, the eggs must be removed from the labeled package or the grade mark must be obliterated.

USDA-licensed shell egg graders supervise all sampling, break-out testing, and maintenance of records under the program. They also check to see that proper temperature and humidity levels are maintained from the farm right through to the retail store.

Eggs marketed under the quality control program may be labeled as U. S. Grade AA, as well as Fresh Fancy Quality, if it is desired. There is also a provision for grading and marketing of A Quality eggs which are produced and handled under similarly controlled conditions.

The author is Assistant Chief, Standardization and Marketing Practices Branch, Poultry Division, AMS.





# Consumption OF PROCESSED FARM FOODS

by Marguerite C. Burk

**A**GRIBUSINESSMEN interested in the prospects for processed farm foods may find some answers for the future by taking a look at what has happened in the past.

A recent Agricultural Marketing Service research study on the consumption of processed farm foods over a 30-year period, does just that.

What the study shows is in some cases expected, in others quite surprising.

The years between 1925 and 1955 saw a radical change in the amount of farm foods being processed and in the amount of processing they were receiving. Frozen foods made their triumphant debut shortly before World War II; cake mixes, prepackaged fresh items, and completely prepared and frozen dinners quickly followed.

As the industry hoped, these changed the eating patterns of many American families. The working wife, the farmer turned city dweller, and workers with higher incomes welcomed the new "convenience" foods and the in-

creased volume of well-known foods being processed.

It was these factors—urbanization, higher incomes, and a basic change in our way of living—that contributed substantially to the increase in consumption of processed foods.

Of the 14 percent rise in per capita purchases of both processed and unprocessed foods that occurred between 1942 and 1955 from 2 to 4 percent was due to "urbanization." That is, it was the direct result of farm families moving to urban areas where they were now required to buy their foodstuffs.

A large number of specialized farmers also turned to buying food products they no longer produced—milk, eggs, even meat.

And, as the post-depression years went by, incomes moved steadily upward. With higher incomes, people tend to eat differently. They buy more of the specialty items—the items more highly processed.

Frozen foods are more often purchased by high rather than low-income families. So are baked goods.

Thirdly, our eating habits have changed considerably in the past

30 years. A major reason is that about 22 million women have gone to work outside the home. They need foods that permit fast, easy meal preparation. And, with higher incomes they find this in processed foods.

But probably the greatest change of all has resulted from modern advances in the processing industry itself. New developments have brought consumers high-quality processed foods in larger quantities than ever before—at little or no increase in price.

Increased availability of certain types of processed foods has been more important in increasing sales of these products than either income or farm-to-urban shifts. About two-thirds of the increase in canned food purchases and four-fifths of the increase in expenditures for these foods between 1942 and 1955 resulted from changes in supplies and in consumer preferences.

All told, 91 percent of the total supply of farm foods moved through marketing channels in 1955. This was 10 percent more than in 1925.

The proportion of the total civilian food supply which moved into

Miss Burk is Head of the Consumption Section, Agricultural Economics Division, Agricultural Marketing Service.





fruits and tree nuts handled commercially rose 64 percent.

**Vegetables**—Total commercial handlings up 50 percent. Increase in fresh only half as much as increase in population; canned and frozen vegetable consumption more than doubled.

**Grain products**—No change. Total consumption the same in 1947 and 1954 as in 1925 and 1929. Decrease in use of flour and meal offset by increases in bakery products and prepared mixes.

**Sugar and sirups**—Small increase in total purchases. Per capita decline in use of refined sugar offset by purchases of sugar in forms of ice cream, bakery products, jams, jellies, and confections.

Over the 30-year period, there was little relative difference between price changes at retail for relatively unprocessed foods—those fresh or raw—and for those of all processed foods.

Now, what about the future?

Market analysts foresee a lot more technological changes and developments ahead. That means more processed foods will find their way on the market. And if purchasing patterns run true to form, people will readily accept these new “convenience” foods.

Income, of course, will play a big role in determining how well the more highly processed items sell. Sales of frozen foods, particularly, depend upon good incomes. But incomes are expected to go even higher. Some economists have projected a rise of about 50 percent in per capita real income from 1954 to 1975.

Because of the rapidly expanding number of marketing services, the expenditures for farm products will, undoubtedly, go up more than the farm value of these foods. Even so, the per capita quantity is expected to run 15 percent higher in 1975 than in 1955. And, the percentage increases in both quantity and expenditures are likely to be half again as much for processed as relatively unprocessed items.

As has been said time and time again, frozen food consumption probably will continue to experience the greatest increase—possibly as much as 40 to 50 percent per person. Other processed items—cheese, instant coffee, shortening, margarine, butter, jams and jellies, and the like—should rise about 25 percent. Dried, cured, and commercially baked foods, on the other hand, appear to be destined for only minor advances.

Canned goods can look for a slight increase in per capita consumption, but very little more than the average for all processed foods. Even this increase will hinge upon two big “if’s”—IF new products continue to be introduced and IF quality is carefully controlled.

These two factors also will determine the future of frozen foods. But quality maintenance will be even more of a factor here. *There is a definite need to keep frozen foods in better condition as they move from packer to consumer.*

So, as might be expected, per capita consumption of the various processed food items will depend, too, upon how good they are. This will require further research into all phases of quality maintenance—into processing, handling, storage, even production.



commercial processing — canned, dried, cured, frozen, or baked—rose from 25 to 35 percent. Total frozen food consumption by 1955 had jumped nine times its 1925 rate. Canned goods saw a boost in sales of some 275 percent.

During the 30-year period, here's how the use patterns of the major commodities changed:

**Meat**—Total commercial slaughter for fresh meat up 50 percent; consumption of canned, cured, and quick frozen items up 70 percent or more.

**Poultry**—Production and consumption up 240 percent with processed items accounting for a fourth of total consumption in 1954.

**Eggs**—Amount of commercially handled eggs up 75 percent from 1925 to 1954; consumption of dried and frozen eggs (usually in cake mixes, etc.) down slightly from 1939 and 1947.

**Milk**—Consumption doubled. Greatest increases in fluid milk and ice cream; declines in evaporated milk and butter in recent years.

**Fruits and tree nuts**—Fresh fruits and tree nuts up 33 percent—slightly less than 37 percent increase in population. Total for all





Cantaloups, run through hydrocooler, must be packed and loaded into refrigerated car without delay if they are to remain cool during transit.

AMS  
researchers  
answer  
shippers  
questions  
on

A FEW California melon shippers have started what may be a new trend in precooling cantaloups. They are hydrocooling melons before packing them in fiberboard containers for shipment out-of-State.

They find that hydrocooling gets today's vine-ripened melons to market in good condition. This operation also allows shippers to pack melons in fiberboard boxes.

At present, most of the cantaloups shipped from California are in wooden boxes. These melons are not cooled until they are packed and loaded into rail cars or trucks. There, ice is spread on top of the load and melted rapidly with fans.

At first, as might be expected in trying a new method, hydrocooling cantaloups presented problems. Questions cropped up.

What is the best rate of water flow per square foot of hydrocooling? How many layers of melons can be cooled at one time? Does the addition of a wetting agent improve the cooling process as it does with peaches?

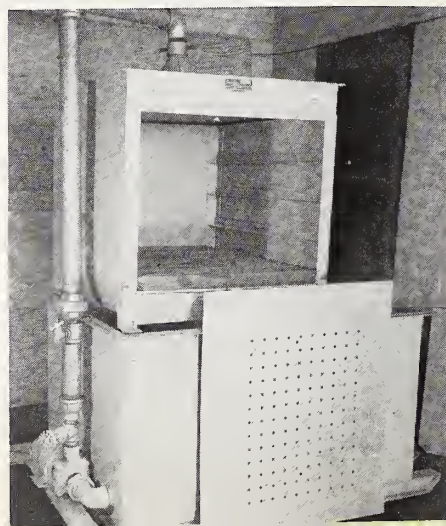
Shippers could not find the answers to these questions by comparing theirs with other hydrocooling

## HYDROCOOLING CANTALOUPS

operations. A cantaloup is larger and of a different consistency and composition than sweet corn, asparagus, or other commonly hydrocooled commodities. Its surface area, from which heat is removed, is smaller compared to the volume to be cooled.

Last summer horticulturist J. K. Stewart and plant physiologist W.

Pilot flood-type hydrocooler used in the tests.



J. Lipton, of the Agricultural Marketing Service's Market Quality Research Division conducted tests at Fresno that answered questions for the shippers.

Cantaloups of various sizes and with differing initial temperatures were used in the tests. They were cooled in a pilot flood-type hydrocooler. Temperature changes were measured at as many as 24 positions.

These temperature measurements were taken at specific depths in the flesh of the melons so that the progress of the internal cooling could be charted.

The test results substantiated these conclusions.

- The water flow rate should be at least 10 gallons per minute per square foot of cooler area. Increasing the flow rate above 12 gallons per minute did not improve cooling.

- Cantaloups may be run through the hydrocooler four layers deep without affecting cooling.

- The addition of a wetting agent does not improve the cooling of the melons.

- Although temperatures near the center of the melons continue to decrease for about  $\frac{1}{2}$  to 1 hour after hydrocooling, the melon, as a whole, warms rapidly when exposed to summer air. This means that after hydrocooling melons must be packed and loaded into a refrigerated car or truck without delay if they are to remain cool for their long trip to market.

With this kind of information shippers can now be sure when they hydrocool cantaloups—sure of how to do an effective cooling job, using a minimum amount of material in the shortest period of time.



Livestock Marketing and Meatpacking under

# THE PACKERS AND STOCKYARDS ACT

**T**HE Packers and Stockyards Act provides rules of fair competition and fair business practices for all persons engaged in livestock marketing or meat-packing and dealing in interstate or foreign commerce.

Dealers and market agencies operating at regulated markets or in the country, if they are engaged in interstate commerce, are registered and bonded under the Act. Regulations require accurate weights for livestock, open competition in its sale, and prompt payment.

This law is administered by the Packers and Stockyards Division of AMS. Specialists serving with this Division maintain supervision of regulated markets and check the accounts of meat packers, livestock markets, dealers, and market agencies to make sure that they are complying with the law. They also investigate complaints made by anyone who feels he has not been treated fairly in a transaction.



Market operators and owners are required by law to keep full and accurate records. This P&S auditor checks books of livestock marketing association.



P&S man watches as scale is inspected for accuracy of operation. This is part of the job of assuring weights at all posted livestock markets.



Cattle dealer and P&S man talk over market practices. All dealers engaged in interstate commerce are under regulations of P&S Act.

*Other photos on the Packers and Stockyards Act are included in USDA Photo Series No. 50. The Office of Information, Photography Division, U. S. Department of Agriculture, Washington 25, D. C., regularly issues photo series which illustrate many activities in the marketing of farm products. A list of photos available can be obtained from that office.*

## Export Apple and Pear Act

(continued from page 6)

(e.g., color, shape, etc.) are scored against the grade.

The present export regulations require only that apples and pears meet specified minimum *grade* standards but do not provide for minimum *condition* standards. Therefore, an Export Inspection Certificate may be issued at time of shipment on a lot of apples or pears which has deteriorated badly in storage but, under these rules, would still meet the export grade standards.

Foreign importers are puzzled and irritated when they fall victim to this experience. They have no way of knowing whether the fruit they buy was packed at time of storage or was repacked at time of shipment which determines whether or not deterioration due to condition factors will be scored against the existing export grade standard.

Furthermore, Export Inspection Certificates frequently are issued for apples and pears at time of packing immediately following harvest. No further inspection of such lots is required even though the fruit may not be exported until several months later.

There are official U.S. Condition Standards for Export for apples but the foreign importer's contract must specify compliance with these standards in order for them to be applied.

Some groups in the apple and pear industries recognize the need for correcting this deficiency in the grade standards and the regulations under the Export Apple and Pear Act. They are urging the industry

to support the U.S. Department of Agriculture in adopting the needed changes.

The Act contains the authority for condition standards and for higher grade standards, although that authority has never been used. But use of that authority now—in the light of our export experiences of the past few years—could well heighten the value of the Act as a marketing tool.

Adoption of higher grade standards, and especially the inclusion of condition standards, would give our apple and pear industries a valuable marketing aid that they urgently need if they are to compete successfully in the fierce competition that characterizes world trading in fruit today.

Not only has fruit production increased in the United States in recent years but there have been substantial increases in countries competing with us in the foreign markets. If U. S. apple and pear growers are to maintain or improve their position in the fruit markets of the world, it cannot be done by shipping mediocre quality fruit. They will have to meet the demands of foreign customers for high-quality fruit.

## Plentiful Foods for September

Broiler-fryers are featured on the September Plentiful Foods List of the U.S. Department of Agriculture.

Also in good supply will be melons, turkeys, peanut butter, and late summer vegetables. Look for an abundance of squashes, celery, sweet corn, tomatoes, radishes, cukes, onions, carrots, and peppers.

In some areas, lamb, too, will be among the "plentifuls."

## Millions of Well-Fed Children

According to the latest estimates, 13.5 million of this year's back-to-schoolers will participate in the National School Lunch Program. This will be the first time participation has topped 13 million, and it illustrates the tremendous year-by-year growth of the program.

During the 1959-60 school year, for instance, over 12.8 million children were served 2,100,000,000 lunches—100 million more than in the previous year. Nearly 1,500 more schools took part in the program, with the final tally now being well over 62,000.

Funds for school lunches come from many sources. Last year, participating children themselves contributed nearly \$550 million. State and local governments contributed another \$100 million and other local contributors added about \$120 million more.

Federal support for the program included USDA apportionment of \$93.8 million in cash, \$70 million in surplus commodities and an additional \$58.5 million used by AMS to purchase and distribute highly nutritious foods to help schools meet standards of the program.

The school lunch program represents a tremendous market for our farm commodities. During the last school year, local purchases of food amounted to \$535 million. These purchases from local producers and suppliers were in addition to the surplus foods and the foods purchased by USDA with school lunch funds. The total value of food consumed in participating schools amounted to over \$663 million—a significant contribution to our farm economy.